

What is claimed is:

1. A position detection apparatus comprising:

a recording medium on which a position signal comprising a periodic signal is recorded;

a detection section comprising a first detection head which moves relative to said recording medium along the recording direction of said position signal for detecting said position signal, and a second detection head which is disposed apart from said first detection head by a predetermined distance in the recording direction of said position signal, and moves relative to said recording medium, operating together with said first detection head for detecting said position signal;

a polar conversion section for converting the position signal detected by said first detection head and said second detection head into an angle signal showing a relative position of said recording medium and said detection section in one period as an angle;

a low pass filter for removing high pass component in the angle signal output from said polar conversion section; and

an output section for outputting relative position information of said recording medium and said detection section, based on said angle signal in which the high pass component has been removed by said low pass filter.

2. A position detection apparatus according to claim 1, wherein said low pass filter has:

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a frequency control oscillator for outputting a periodic signal in which the frequency is controlled based on a frequency control signal;

a phase comparator for comparing the phase of the angle signal output from said polar conversion section and the periodic signal output from said frequency control oscillator to thereby output a phase error;

an integrator for integrating the phase error output from said phase comparator to thereby output a velocity error; and

an adder for adding the velocity error output from said integrator and the phase error output from said phase comparator to thereby generate said frequency control signal,

wherein said frequency control oscillator controls the frequency of said periodic signal so that said phase error is zero based on said frequency control signal, and outputs the periodic signal as the angle signal in which the high pass component has been removed.

3. A position detection apparatus according to claim 2, wherein said low pass filter has:

first increase and decrease means for increasing or decreasing the phase error output from said phase comparator; and

a second increase and decrease means for increasing or decreasing the phase error output from said first increase and decrease means;

wherein said integrator integrates the phase error increased or decreased by the

13. A position detection apparatus according to claim 12, wherein said gain control section decreases the gain of said phase error, when a condition that the absolute value of the phase error output from said phase comparator increases, exceeding a certain level, continues for a predetermined time.

14. A position detection apparatus according to claim 1, wherein said polar conversion section designates a position signal detected by the first detection head and the second detection head as an address, and uses a table wherein said angle signal corresponding to the address is stored, to thereby generate an angle signal showing a relative position of said recording medium and said detection section in one period as an angle.

15. A position detection apparatus according to claim 14, wherein said address and/or said angle signal are Gray coded.

16. An arithmetic processing unit comprising:
a polar conversion section for respectively converting a first periodic signal and a second periodic signal whose phase is different from that of said first periodic signal into an angle signal showing an angle in one period of said first periodic signal and said second periodic signal;

a low pass filter for removing a high pass component in said angle signal output from said polar conversion section; and

an output section for outputting position information shown by said first periodic signal and said second periodic signal, based on said angle signal wherein the

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a frequency control oscillator for outputting a periodic signal in which the frequency is controlled based on a frequency control signal;

an integrator for integrating the phase error output from said phase comparator to thereby output a velocity error; and

wherein said frequency control oscillator controls the frequency of said periodic signal so that said phase error is zero based on said frequency control signal, and outputs the periodic signal as the angle signal in which the high pass component has been removed.